

HOYA NEW

Hoyas in the Wild



This is a slide from March 1986. Near village of Ghara above Tatopangi Central Nepal, 5800' elevation. Tree overhanging Kali Ghandaki River gorge. Photographer unknown

Oh There it is !

A pdf publication devoted to the Genus
Hoya ISSN 2329-7336

Editor:
Dale Kloppenburg
Volume I Issue 2

December 2013

Contents

This second issue will be devoted to the publication of some more new hoya species from the Philippines and one from Samoa.

Contributors:

Ulysses Ferreras, botanist, plant collector, plant taxonomist.

Dale Kloppenburg retired: Graduate of UC Berkeley, plant genetics, Lt. USNR, Plant Breeder and Research Agronomist, now taxonomist of Genus Hoya.

George Mendoza, Landscape Artist, Nurseryman and Plant Explorer from Quezon City, Philippines, visit his web site www.forest-treasures.com.

Simeona V. Siar former University Former Researcher -Crop Science Cluster, Institute of Plant Breeding. College of Agriculture, University of the Philippines. Now deceased.

The following new species are presented in PDF format with ISSN number.

1. **Hoya apoensis subsp. sagittaria** Kloppenburg, Siar & Ferreras
2. **Hoya davaoensis** Kloppenburg
3. **Hoya pubicorolla** Kloppenburg, Mendoza & Ferreras
4. **Hoya pubicorolla subsp. anthracina** Klopp., Mendoza & Ferreras
5. **Hoya tiatuilaensis** Kloppenburg
6. **Hoya taytayensis** Kloppenburg & Siar

NOTE: please see the Website publication of these species at “www.rare-hoyas.com”. Go to end and click on “publication” to access my HOYA NEW publications.

Hoya apoensis subsp. sagittaria Kloppenburg, Siar & Ferreras ISSN 2329-7336

Specimen collected by Ulysses Ferreras on Mindanao, South Cotabato Province, Tampakan Municipality, near Sagittarius Mining Inc, Base Camp. N 06° 28'29.4" E. 125° 03'29.0". Altitude 1.395 mas! Habitat: found growing in a low montane residual forest at the top of a hill. Forest patch less than half a hectare with understory planted with coffee. Intermediate adjacent area already converted to cornfield. Collection number UF 737. Via Dr. Simeona Siar in small poly bag, 1/22/10. 4 flowers on pedicels.

Hoya apoensis subsp. sagittaria Kloppenburg, Siar & Ferreras subspecies nova, Holotypus 71722 (CAHUP) hic designatus. Section Acanthostemma (Blume) Kloppenburg, similis *Hoya apoensis* Kloppenburg & Siar sed differt in parvis modo. Corollae color roseus non citreus; flos parvior 1.08 cm diametro applanatus contrstre 1.26 cm; coronae lobus brevior 0.18 cm contrstre 0.22 cm, differt.

This new subspecies is similar to *Hoya apoensis* but slightly different, the color of the corolla is rose red not bright yellow. The corolla flattened is slightly smaller, the coronal lobes apex – apex are shorter and there are some minor differences in the pollinarium.

Photomicrographs of flower parts with measurements:



Pedicel: slightly curved, 1.5 cm long, terete, glabrous, 0.10 cm in diameter, slightly bulbous at the calyx. Enlarged about 25X.



Picture enlarge about 11X, bottom of calyx bulbous.



Calyx: small triangular sepals, triangular to sub-obtuse at apex. 0.11 cm long, 0.09 cm widest at base, glabrous no overlap, ligules. Enlarged about 12X.

Ovaries: dome shape tapering to apex, glabrous, 0.15 cm long, 0.10 cm wide at the base.



Outside view of the flower showing pedicel and calyx attached.



Corolla: rotate ends recurved to revolute, glabrous outside, slick, inside pubescent with prominent cells pointing centrally, apex inside glabrous, inside at central area slight pentagonal distinction with slight less puberulance. Enlarged about 12X.

Sinus – sinus	0.30 cm
Sinus – center	0.26 cm
Sinus – apex	0.39 cm
Apex – center	0.54 cm
Widest	0.35 cm



Above: photo outside surface of the corolla.

Left: inside surface of the corolla enlarged ca. 12X.



Corona: bilobed, inner lobe narrow spatulate, outer lobe obtuse, bilobes flat near lobes and bending inward and touching at outer apex with rounded ends, sulcate. Channeled below narrow with large open center and thickening of short central column, hair cells around column base. Enlarged about 13X.

Apex – apex	0.18 cm
Apex – center	0.20 cm
Center – bilobes	0.23 cm
Bilobe extensions	0.06 cm
Ret. – ret.	0.06 cm
Ret. – center	0.06 cm
Aw. – aw.	0.16 cm
Aw. – center	0.15 cm



Enlarged about 14X.

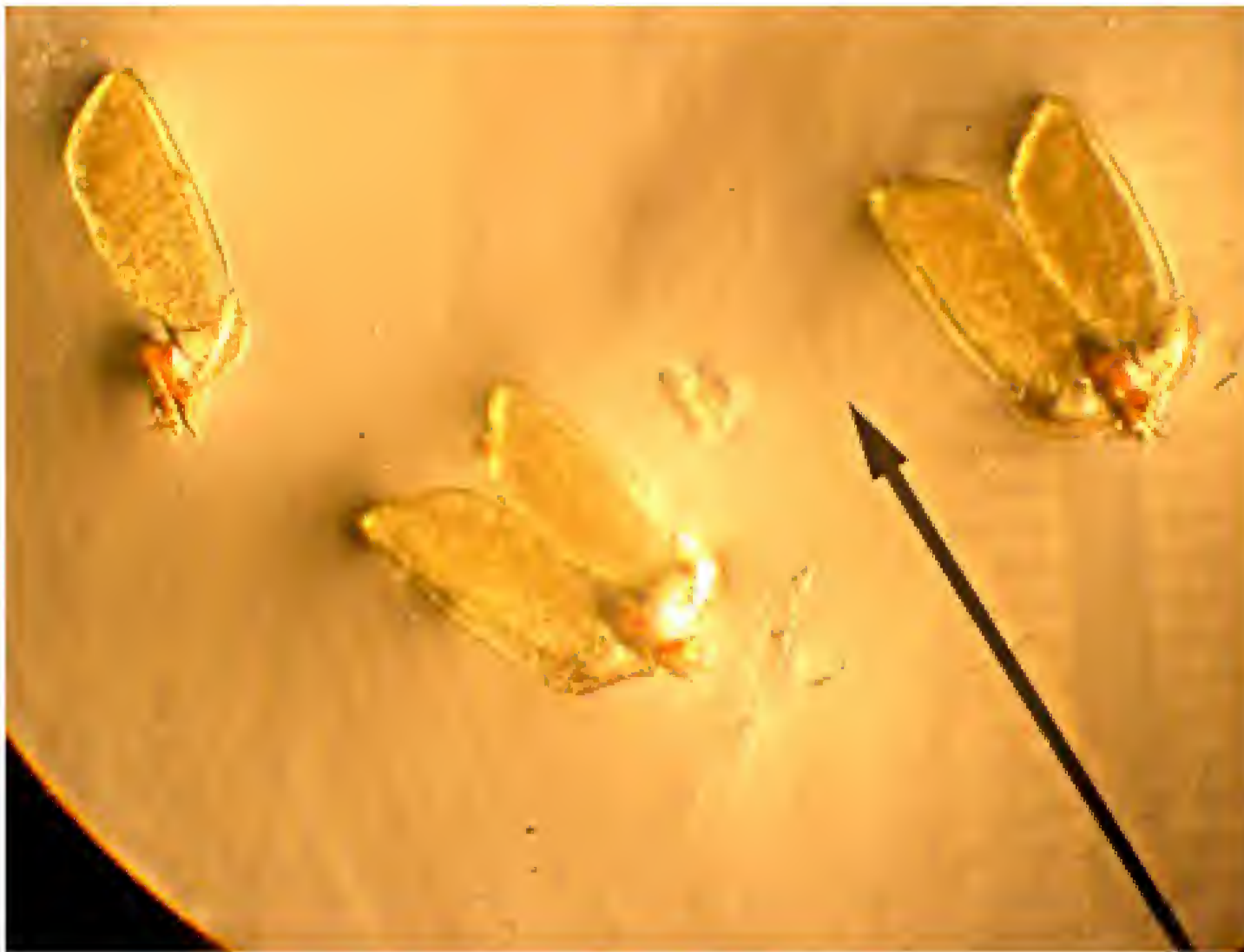
Left bottom view of the corona; below dorsal view of the corona.





Leaves glabrous, pinnate nervation ca. 38° to midrib, cuneate base, elliptic, apex acute to sub apiculate. Leaf measurements at the end taken from herbarium sheet by Dr. Simeona Siar.





Pollinarium enlarged ca. 80x.

Pollinium

length	0.35 mm
widest	0.12 mm

Retinaculum

length	0.15 mm
shoulder	0.05 mm
waist	0.04 mm
hip	0.06 mm
ext.	0.03 mm

Translator

length	0.15 mm
depth	0.02 mm

Translator/caudicle type: fb/cw

Caudicle

bulb diam.	0.05 mm
------------	---------

x. CAHUP 71722 (Philippines UF 737)

Leaf sample	Length (cm)	Width (cm)
1	7.60	2.70
2	7.60	2.60
3	9.30	2.40
4	9.60	2.50
5	8.10	3.20
6	7.30	2.30
7	8.90	2.80
8	7.10	2.00
9	6.30	2.50
10	5.90	1.80
Mean	7.77	2.48
Range	5.90-9.60	1.80-3.20

Hoya davaoensis Kloppenburg

ISSN 2329-7336

Hoya davaoensis Kloppenburg sp. nova, holotypus 49272 (UC) hic designatus, similis *Hoya pubicalyx* Merrill, Philippine Journal of Science¹³, C5:1918, 131, cum foliis similis sed petioli 2X longiores; pedicello brevior 1.67 cm contrastre 1.80 cm; corona parvior 0.72 cm diam. contrastre 1.00-1.20 cm

This new species has foliage similar to *Hoya pubicalyx* Merrill but the petioles are two times longer and the pedicels are shorter 1.67 cm vs. 1.80 cm, and the corona is smaller in diameter 0.72 cm vs. 1.00-1.20 cm

Measurements and observations from the UC Type sheet:

Stems: very thick 0.5 cm in diameter, nodes enlarged 1.0 -1.2 cm in diameter 17 cm long.

Blade: oval 8-11 cm long x 5 cm wide, apex short apiculate rounded, base rounded to sub acute, glabrous above and below, obscure pinnate nerves, margins recurved.

Petiole: strict 2 cm long, channeled above, glabrous.

Peduncle: 3 cm long, glabrous, strict, 0.1 cm in diameter. Rachis enlarged 3-4 cm long.

Pedicel: strict, filiform, glabrous, 2.0 cm long. 12 open, 15 unopened buds, not open all at once.



View of the pedicel, calyx and corolla outside.

Pedicel is glabrous strict, terete.

Sepals: ovate, 0.37 long and 0.27 at the widest, edge entire overlapped ca. 1/2.

Corolla: outside glabrous, inside papillose. Strong collar 0.07 cm tall and 0.14 cm at opening. (had been eaten by bupestids).

Sinus – sinus	0.57 cm
Sinus – apex	0.55 cm
Apex – center	0.83 cm



Inside surface of the corona, inner lobe almost touch in center, dorsal nearly horizontal rising slightly to outer apex, cupped with umbo near outer rounded apex and reflexed. Surface glabrous, sulcate. Scales are channeled below. Inner apex dentate.

Apex – apex	0.35 cm
Apex – center	0.36 cm
Widest	0.20 cm

Pollinarium

Pollinium

length	0.80 mm
widest	0.25 mm

Retinaculum

length	0.20 mm
shoulder	0.15 mm
waist	0.10 mm
hip	0.12 mm
ext.	0.03 mm

Translators

length	0.15 mm
depth	0.04 mm

Caudicle

bulb diam.

Translator/caudicle type: d/o

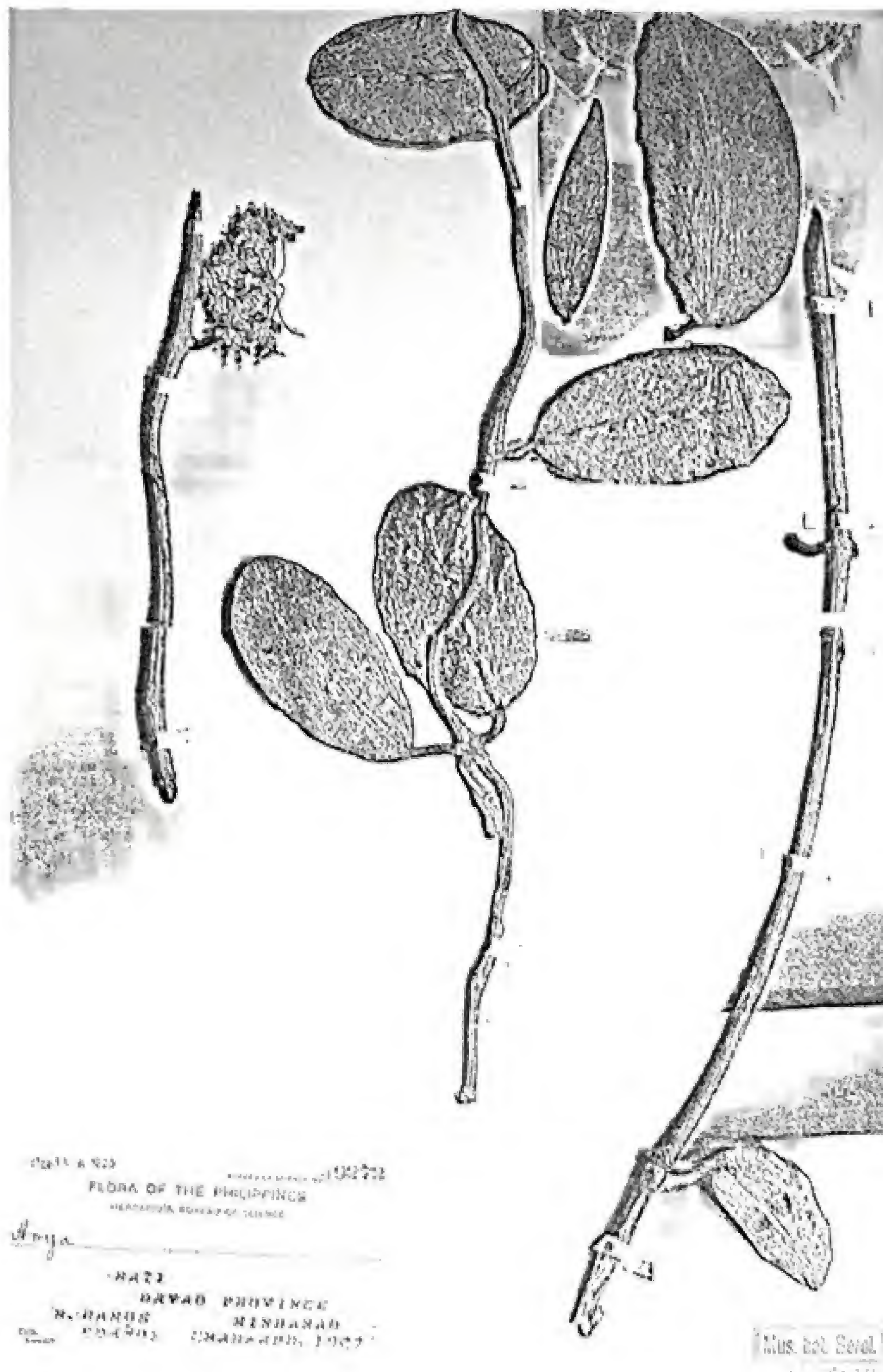




Collected by Ramos & Edano at Mati, Davao, Mindanao, Philippines, March -April
1927, UC #49272 also at (B)

Flower red salmon color in open places in forest stream, low altitude. This is not *Hoya meliflua* Merrill.

Sheet at (B) with same number labeled Hoya



Hoya pubicorolla Kloppenburg, Mendoza & Ferreras

ISSN #2329-7336

Hoya pubicorolla Kloppenburg, Mendoza & Ferreras sp. nov. Holotypus Edano #3235 (PNH) hic designatus. Frutex scandens, inflorescentiis exceptis glaber, ramis teretibus, circiter 0.3 mm diametro; foliis carnosis, ellipticus, vulgo ad 13.8 cm longis et 4.5 cm latus, pallidis, nitidis, basicuneatus, apice acuminatis, pinnatinerviis, nervis utrinque circiter 6, utrinque valde obscuris; petiola ca. 1.2 cm longis; pedicellis tenuibus circiter 3.3 cm longis leviter pubescentibus; floribus rotatis, in siccitate brunneis, circiter 2.2 cm diametro complinatus; sepalis ovatis, subacutis, extus leviter pubescentibus, 0.48 cm longis; corollae lobis late triangularibus, acuminatis, circiter 0.64 cm longis, indus dense pubescentibus, apice leviter reflexis, glabrous; coronae lobis coriaceis, oblongo-ovatis, 0.56 cm longis, acuminatis vel acutis, patentibus, apice leviter emarginatus.

A scandent shrub, entirely glabrous except the inflorescence, the branches terete, rather pale when dry, about 0.3 cm in diameter. Leaves opposite, fleshy, elliptic generally 13.8 cm long, 4.5 cm wide, base cuneate, apex distinctly acuminate; lateral nerves pinnately arranged, indistinct, about 6-8 on each side of the midrib, ascending, scarcely more evident than are the lax, indistinct reticulations; petioles about 1.5 cm long, the pedicels spreading, slender, about 3.3 cm long, sparingly appressed-pubescent. Calyx-segments ovate, subacute, externally somewhat pubescent, about 0.48 cm long. Corolla-lobes broadly triangular, about 0.64 cm long, spreading, rotate, externally glabrous, internally densely pubescent the apex somewhat recurved and glabrous. Corona lobes spreading, coriaceous, oblong-ovate to ovate-lanceolate, acuminate, 0.56 cm long, the external tip emarginate, the internal one ascending, the upper surface plano-convex and somewhat keeled in the median portion. The anthers greatly exceed the inner coronal lobes.

This species for years has been misidentified as *Hoya pubicalyx* Merrill and widely distributed under this name in the trade. This new species leaves are elliptic to ob-elliptic, with a cuneate base not oblong to oblong-obtuse with an obtuse base; average mature leaf is ca. 15.0 cm long and 4.3 cm at the widest the corolla inner surface of this (new) species is densely pubescent not papillose and much larger, lobes here 0.86 cm long versus 0.60 cm long, flattened this new species is 2.20 cm in diameter; the corona lobes just exceed the corolla sinuses with a diameter of the corona of 1.26 cm

Note: most of the clones of this species, but not all, have silvering on the leaf upper blade often with some pinkish tones added in. The petiole is grooved above, slightly curved, often corky, 1.5 cm long, 0.4 cm in diameter the sap is also clear not noted in the *Hoya pubicalyx* Merrill type description.

Some background on the Philippine Herbaria: (PNH) the Philippine National Herbarium at Manila was destroyed at the end on world war II, The original Type sheet “Luzon, Tayabas Province, Mauban, Bur. Sci. 19484 Ramos & Edano, January 24, 1913, on trees along streams in damp forests” was destroyed. All subsequent new herbarium sheets bearing the name *Hoya pubicalyx* are misidentified in my opinion, the first of these sheets

were added in (PNH) by Edano #3235 1948. I have been unable to locate any lectotypes of this species in any herbaria. Next (PUH) herbarium at Quezon City was also destroyed in World War II it was reestablished in 1946 about the same time as the (PNH) Herbarium. Definitions: **Papillatus** = having papillae, nipple-like surface. **Pubescens** = hairy as opposed to glabrous. **Puberulous** = minutely pubescent, downy with soft short hairs.

Photomicrographs and measurements of floral parts follow:



Pedicel enlarged about 8X. Surface with scattered pubescence, terete straight. This is from a non-silvered leaf form sent from the Philippines by Dexter Heuschkel. Pedicels appear the same but the sepal lobes differ from those “Red Buttons” which has long narrow sepals.

Pedicel: 3.3 cm long x 0.13 cm in diameter, surface reddish with whitish lenticels.



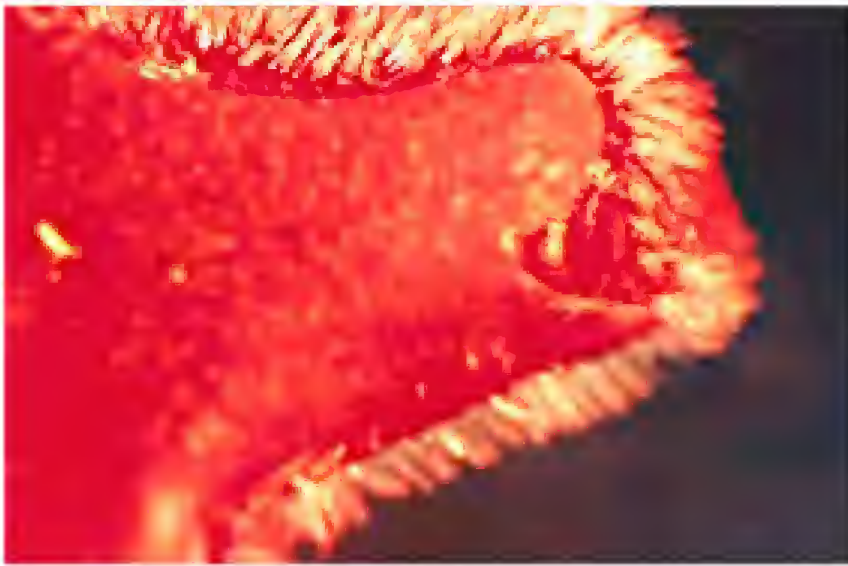
Calyx enlarged about 8X, same as above. Outside pubescent, ciliate; inside glabrous, overlap about 1/3.

Calyx: apex reaches the corolla sinus. Sepals 0.48 cm long and 0.18 cm at the widest. Diameter about 1.0 cm flattened.



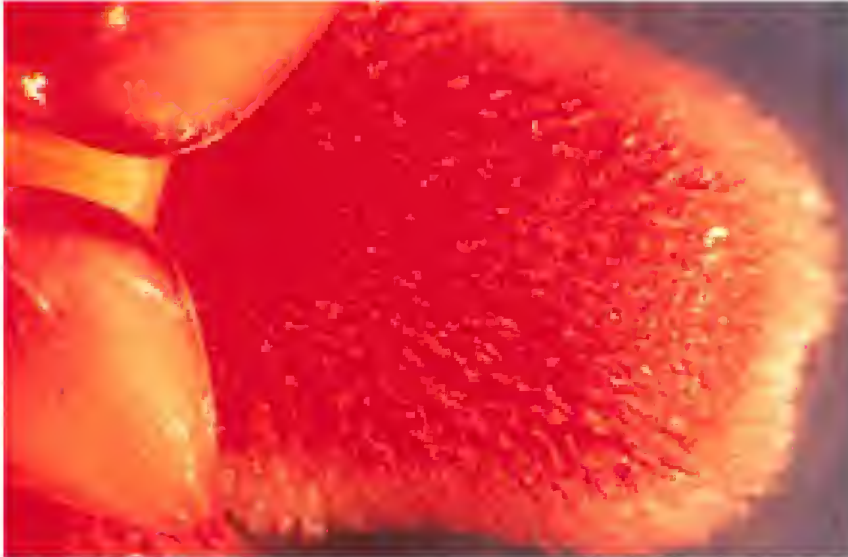
Calyx enlarged about 8X. Inside glabrous, bases of sepals overlap, ligules present. Ligules in this species, variants are very variable, from long slender exceeding the sinuses to short as here and in this case with 2 missing. Edges ciliate apices narrowly obtuse.

Ovaries: dome shaped with separation on the inside surfaces near the apex. 0.25 cm tall and base pair 0.20 cm



Ventral view of corolla lobe enlarged about 8X. Surface is glabrous, almost crystalline as is the inner surface at the apex, which here turned under as are the lobe edges.

Sinus – sinus	0.55 cm
Sinus – center	0.46 cm
Sinus – apex	1.10 cm
Apex – center	1.32 cm



Dorsal (top) view of a corolla lobe and part of the corona enlarged about 8X. Inside surface very dense pubescence. Coronal lobes exceed corolla sinuses.



Ventral view of the corona enlarged about 8X, scales are channeled and edges very finely sulcate; with long under curve below anther wings. Central column thickened. 0.10 cm tall.



Top view of the corona enlarged about 8X. Inner lobes do not reach the center where the long anthers rise above the center, which are 0.13 cm long. Inner lobe keeled on top and spatulate. Scales broaden outwardly, then tapering to an emarginate apex, dorsal surface slightly sunken and with sharp edges above and slightly raised down the center.

Apex – apex	0.56 cm
Apex – center	0.63 cm
Widest	0.33 cm
Ret. – ret.	0.14 cm
Aw. – aw.	0.35 cm
Aw. - ret.	0.17 cm



View of the pentagonal styler crown with most coronal scales intact enlarged about 8X. The styler apex is raised, somewhat columnar with a mealy texture.



Pollinarium enlarged about 165X. Measurements for this clone

Pollinia

length	0.72 mm
widest	0.23 mm

Retinaculum

length	0.27 mm
shoulder	0.22 mm
waist	0.09 mm
hips	0.10 mm
extensions	0.08 mm

Translators

length	0.15 mm
depth	0.02 mm

Caudicle

bulb diam.	0.11 mm
------------	---------

Translator/caudicle type: ls/o

Leaves: opposite, glabrous, petiolate, lateral nerves pinnately arranged, indistinct, elliptic, base cuneate, apex acute, dorsal surface often blotched (silvered) but some clones not.

Leaf measurements: in centimeters.

	<hr/>		length	width	petiole length
1)	15.0	4.3	1.8		
2)	13.0	3.8	2.4		
3)	12.7	4.3	2.6		
4)	11.5	3.9	2.1		
5)	8.7	3.3	1.8		

Range: 8.7-15.0 3.3- 4.3 1.8-2.6



Hoya pubicalyx Merrill

A typical plant of this species photo by Ann Wayman in Central Point Oregon, USA. Previously thought to be *Hoya pubicalyx* Merrill.

Below a typical **Hoya pubicorolla** flowering plant below blooming in Fresno, California, USA. Misidentified as *Hoya pubicalyx* Merrill.



A list of herbarium sheets labeled as *Hoya pubicalyx* Merrill, all incorrectly labeled as near as I can determine.

Herbarium Sheets:

Edano #3235 1948 (PNH); Kondo and Edano #36884 1948 (PNH), #36790 1957 (PNH); Britton #19486 1953 (PNH); Mandoza #97463 1967 (PNH); Fox # 9226 1949 (PNH); ? #13972 1951 (PNH); Velasco #9135 1954 (CAHUP), #9136 1954 (CAHUP); Kienholtz #15460 1924 (UC).

Hoya pubicorolla subsp. anthracina Kloppenburg, Ferreras & Mendoza ISSN #2329-7336

Hoya pubicorolla subsp. anthracina Kloppenburg, Ferreras & Mendoza subsp. nova holotypus 14597 (PUH) hic designatus. Similis specie, sed pedicilis longior 3.8 cm contrstre 3.3 cm; sapalis longior 0.20 cm contrstre 0.18 cm et corollae lobis brevior 0.55 cm longis contrstre 0.77 cm; similes Hoyas pubicalyx Merrill, Philippine Journal of Science 13 (1908) 221. sed corolla intus non dense papillosis sed dense pubescentibus, differt.

This new subspecies differs from the species in that the pedicels of this subspecies are longer 3.8 cm contrstre 3.3 cm and the sepals are longer 0.20 cm versus 0.18 cm and the corolla lobes are shorter 0.55 cm long versus 0.77 cm, also similar to *H. pubicalyx* but the inner (dorsal) corolla surface here is very pubescent not densely papillose, among other differences.

Photos of flower parts and details:



Pedicel: section enlarged ca. 27X, strict, terete, glabrous, 3.8 cm long and 0.12 cm in diameter.



Calyx: side view enlarged ca. 15X, the base is pubescent, as is the sepal outer surfaces, also ciliate.



Calyx top view enlarged ca. 12X, the inner surface is slick glabrous, sepals 0.20 cm long and 0.20 cm at the widest, ligules are at the sinuses 1-11-2-2 pattern

Ovaries: are columnar, glabrous, 0.24 cm tall and base pair 0.15 cm wide.

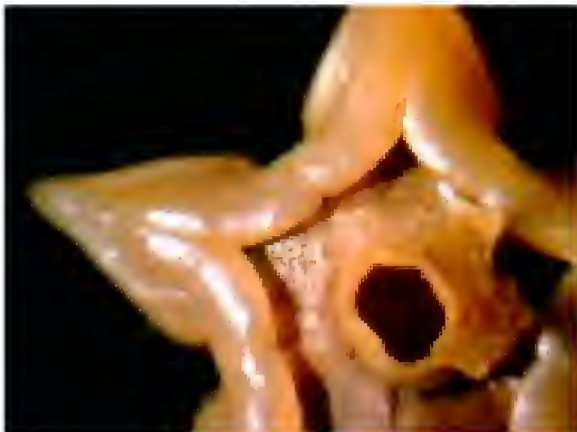


Corolla: ventral lobe area enlarged ca. 13X the surface is glabrous, sinuses conduplicate, apex and edges turn under and apex on dorsal side is also glabrous.

Sinus – sinus	0.55 cm
Sinus – center	0.50 cm
Sinus – apex	0.65 cm
Apex – center	1.05 cm
Widest	0.70 cm



Corolla dorsal surface, here pubescent; diminishing in center of lobes and also nearer the center, here there are stellate hair cells pointing inward toward the center.



Corona: ventral surface enlarged ca. 8X, the lobes are channeled with edges round and rolled under, the surface is smooth only under high magnification are slightly sulcations visible, central column 0.07 cm tall, surrounding at base clear but granulate.

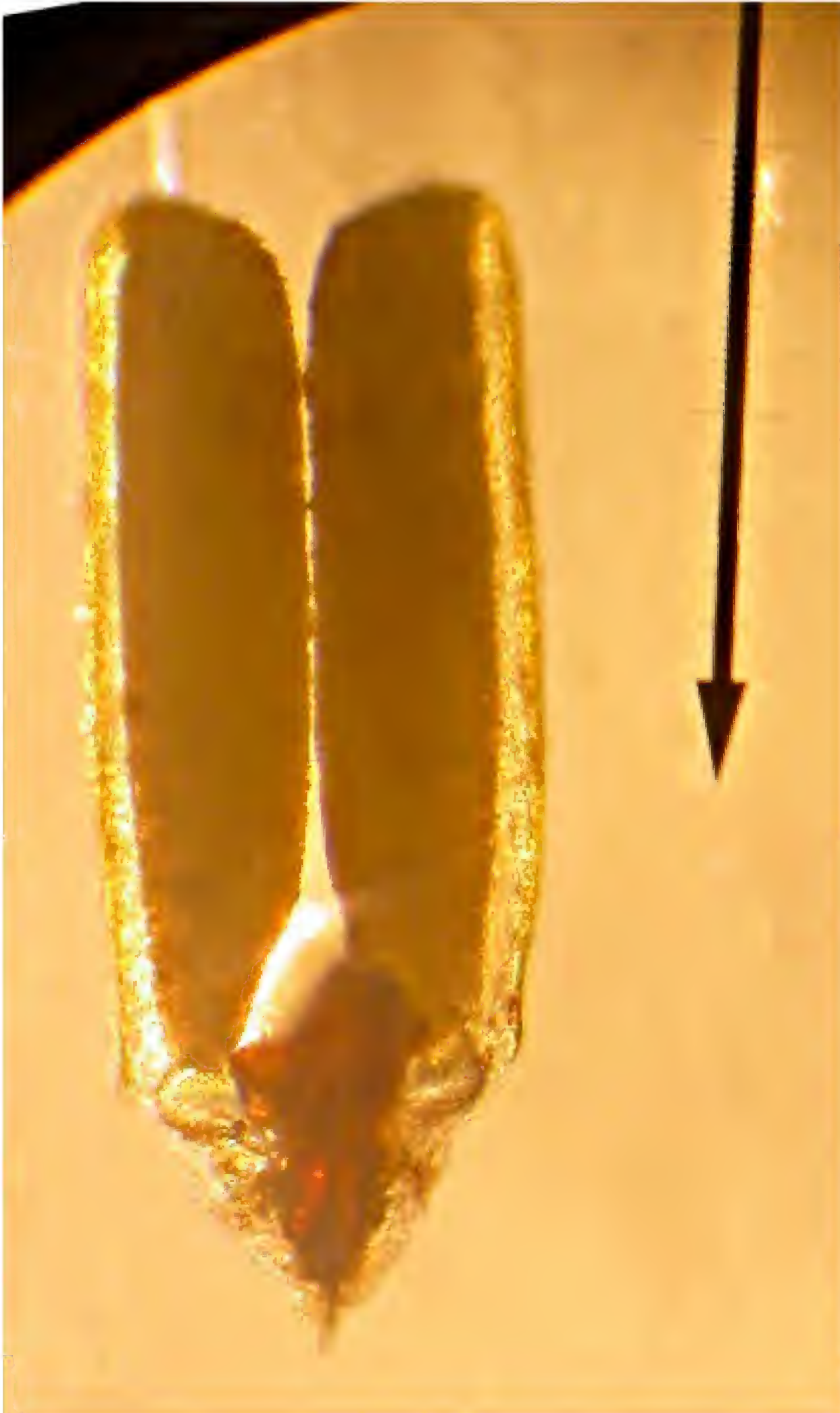


Corona dorsal surface enlarged as above. Again glabrous surfaces Inner lobe is raised, sub terete with anthers greatly exceeding by 0.07 cm, dorsal convex except along the side shelves which extend about half way toward the outer apex that is sub acute, edges of shelves sharp.

Apex – apex	0.52 cm
Apex – center	0.59 cm
Widest	0.29 cm
Ret. – ret.	0.12 cm
Ret. – center	0.15 cm
Aw. - aw.	0.32 cm
Aw. – center	0.32 cm



Corona scale side view enlarged ca. 9X, surfaces are smooth, glabrous, anthers greatly exceeding inner lobe, outer apex end slightly rolled down but sub acute.



Pollinarium enlarged ca. 180X.

Pollinium

length 0.83 mm
widest 0.20 mm

Retinaculum

length 0.26 mm
shoulder 0.20 mm
waist 0.10 mm
hip 0.16 mm
ext. 0.05 mm

Translator

length 0.10 mm
depth 0.03 mm

Caudicle

bulb diam. 0.08 mm

Translator/Caudicle

Type: d/o

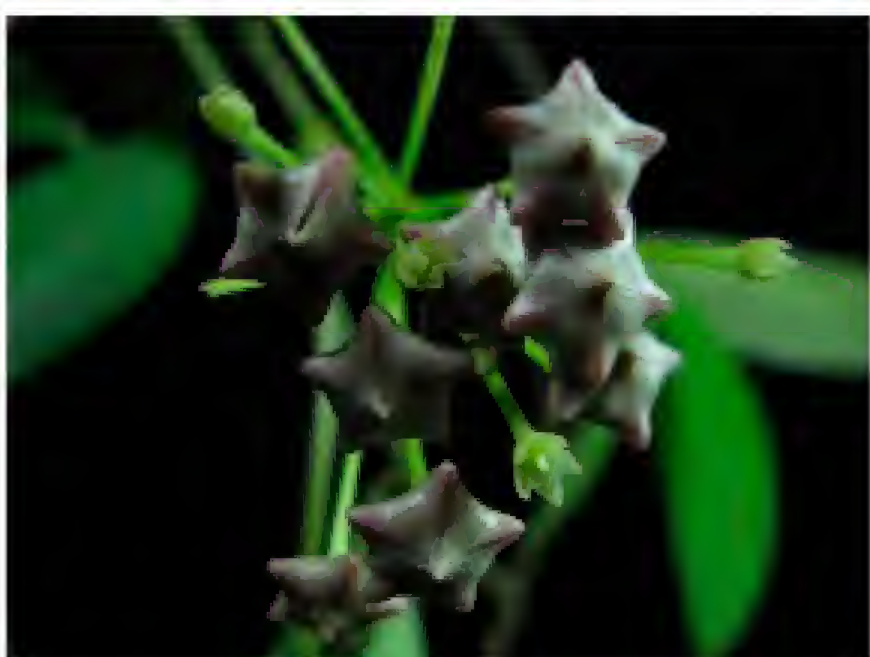
Ratios: p/w 4.2
p/r 5.2

Flowers in globose
clusters of ca. 28
flowers.

Photos of flowers of this species sent by George Mendoza



**Vile #14 DSC 2391 2392
2395 GM**



Notations:

H. pubicalyx pedicels pubescent 3.5 cm long.

Merrill said inside corolla densely papillose this one is definitely pubescent !!!

Inner lobes not as long and are not terete but dentate.

Corona lobe dorsal more keeled.

Coronal lobes a little longer 0.55 cm versus 0.50 cm (Corona smaller on this one).

Hoya tiatuilaensis Kloppenburg ISSN 2329-7336

Hoya tiatuilaensis Kloppenburg sp. nova Type 9089 HAW hic designatus similis *Hoya samoensis* Seemann sed partes omnes parvi, folia 5.5 -6.5 cm x 3 – 3.5 cm contrstre 7 – 10 cm x 3.5 – 5.8 cm; pedunculi 4.5 cm longi contrstre 5.5 – 6.5 cm; coronae lobis 0.20 cm longi x 0.10 cm, lati contrstre 0.35 – 0.40 cm x 0.15 – 0.20 cm, differt.

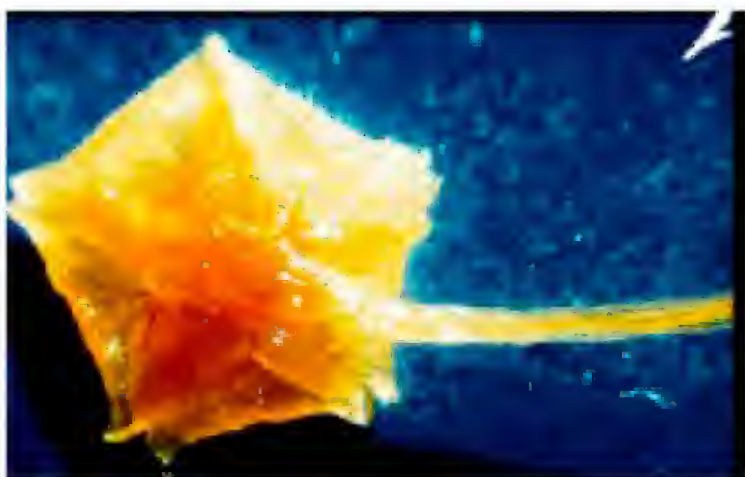
Description of the Herbarium sheet 9089 HAW:

9089 as *Hoya pottsii* Traill, 5 Jan, 1993 Tiatuila, Samoa. Vine with cream colored flowers, sap not noticeably milky, occasional, but only one seen in flower, in the ridge forest on Tiataula ridge east of Vatia. Elevation 180 m. 2 stems 5 leaves, 1 flower globose cluster of ca. 34 flowers. 1 stem with adventitious roots all along. Leaves glabrous, broadly ovate-lanceolate, shortly attenuate, apex acute, base rounded but not cordate, 5.5 - 6.5 cm long 3 - 3.5 cm widest nearer the base, nervation quintuplinervis 5 distinct on both surfaces, same color as the leaf, secondary nerves some looping near the margins, primary nerves extend to near the apex. Petiole glabrous, not thin 1.5 cm long probably grooved above, same color as the stem, circular gland at the attachment above. Internodes glabrous, mostly 8 cm long, terete, 0.2 cm in diameter, roots up to 3 cm long, fine, nodes not much enlarged. Peduncle glabrous, straight, 4.5 cm long, terete rachis a little longer, fascicles.

Pedicels, glabrous, very fine, terete, 34 flowers. 2 cm long, light colored.

Note: not *H. pottsii*, leaf quintuplionervis not palmate and base not cordate. Flower relatively small, Calyx large, reaches sinus of corolla.

Micro Photos of flower from sheet 9089:



Outside view of the flower enlarged about 8X. Pedicel is glabrous, terete, short, 1.05 cm long 0.05 cm in diameter, Calyx is very large, outside granulose, inside smooth, sepal apex reaches the corolla sinuses. Flower not yet opened.



Calyx: Left outside view, right inside view enlarged about 8X., glabrous. Sepals 0.13 cm long, 0.13 cm at the widest, near the base. One ligule seen.

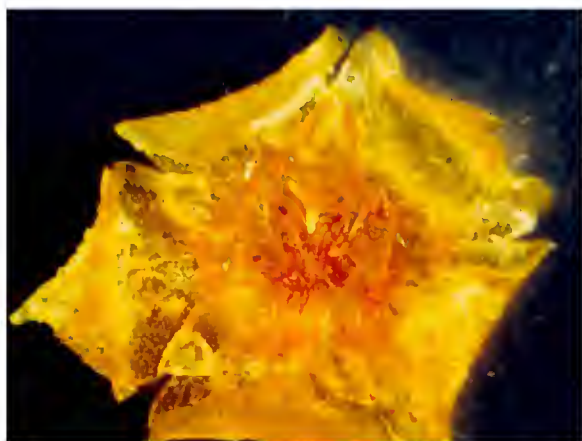


Outside view of the corolla enlarged about 8X. This surface is glabrous, central ring raised (convex).

Sinus - sinus	0.25 cm
Sinus - center	0.21 cm
Sinus - apex	0.38 cm
Widest	0.33 cm
Apex - center	0.55 cm

So the flower diameter flattened is 1.10 cm Lobes

widest out from the sinus area.



Inside view of the flower enlarged about 8X. Surface is finely and evenly pubescent. Coronal apex is acute. Inner lobe long apiculate, dentate, do not reach the center. Inner lobe can be seen as yellow linear line near the center



Top view of the corona enlarged about 8X. Outer apices seem to be emarginate. Lower surface channeled.

Apex - apex	0.20 cm
Apex - center	0.23 cm
Widest	0.10 cm near the inner lobe.
Anther wing - aw.	0.15 cm
Retinaculum - ret.	0.08 cm
Aw. - center	0.13 cm
Ret. - center	0.05 cm

Anther wings are very bulbous



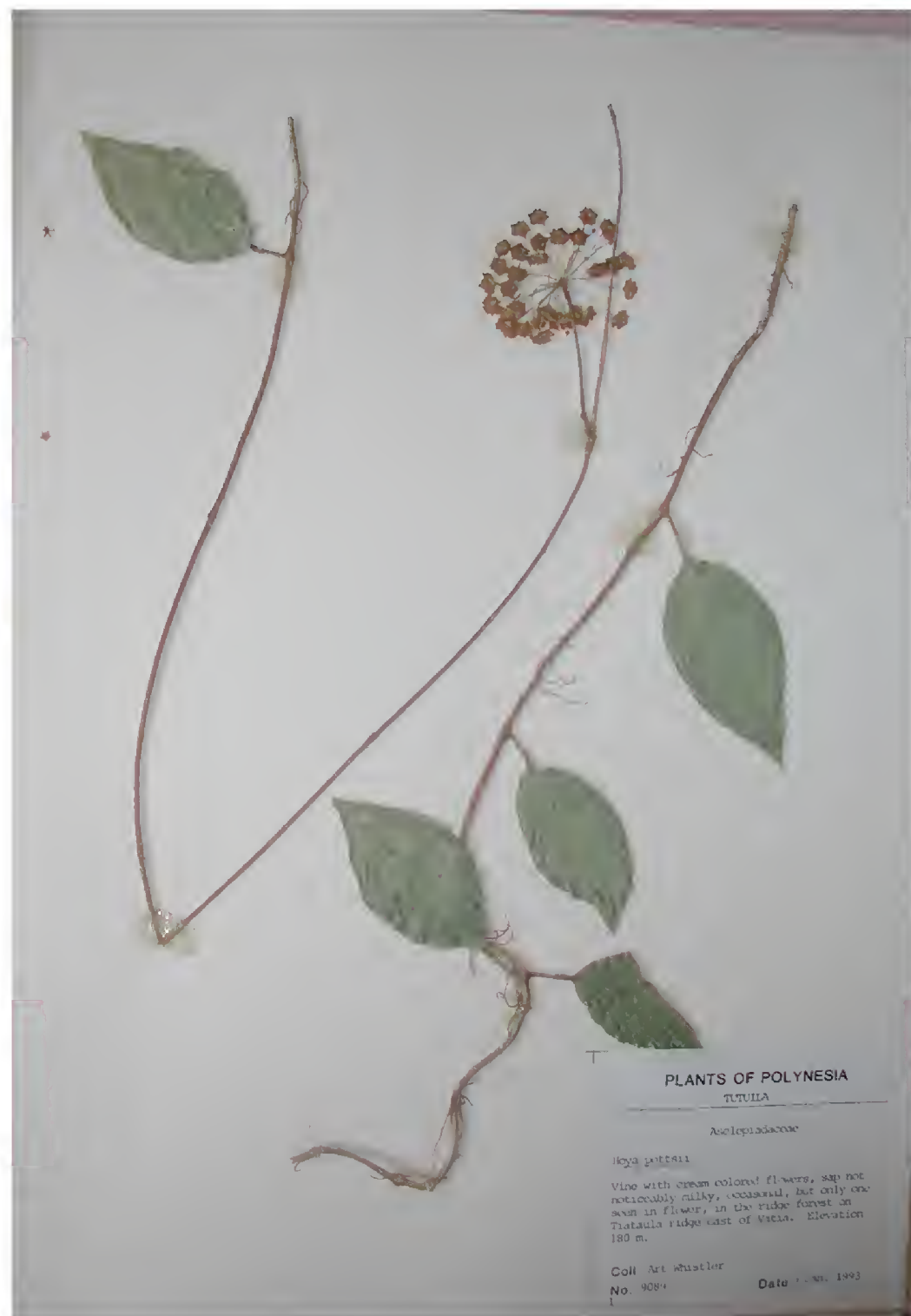
Several retinacula enlarged about 82X. Head is long with shoulders well down, waist only slightly narrower, and hips a little extended.

length	0.20 mm
shoulder	0.13 mm
waist	0.09 mm
hip	0.10 mm
extensions	0.08 mm



Pollinia here still in the anther sack enlarged about 82 X. The length is ca. 0.55 mm long and 0.20 mm widest.

Reduced picture of the type sheet, to the right.



Hoya taytayensis Kloppenburg & Siar

Hoya taytayensis Kloppenburg & Siar sp. nova, typus 9385 (BO) hic designatus. Similis *Hoya crassicaulis* Elmer ex Kloppenburg Fraterna 8/3:1995,10 sed differt, coronae lobi extus obtusus non acutus; folia parvior sed similis, pollinium multo longior 0.70 mm contrastre 0.50 mm.

This new species is similar to *Hoya crassicaulis* but the outer lobes of the corona are obtuse not acute, the foliage is similar but smaller and the pollinium are longer among other differences. The species was collected by E. D. Merrill at Taytay, Palawan, Philippines in 1913.

Worked 11 Nov. 1993.

Stems: heavy 0.4 cm + in diameter, nodes larger, internodes 0.5- 1.0 cm long, glabrous.

Leaf blade: ovate to ovate elliptic, base obtuse, apex sub acute, 6-9 cm long and 3.5 - 6 cm wide, glabrous on both surfaces, nerves pinnate 4 pair, edges rolled under.

Petiole: 0.25 cm long dark color, glabrous.

Peduncle: short 1.5 cm long.

Rachis: Broad rounded.



Left: inside view of the calyx, ovaries dark near center. Right: bottom view of the calyx.

Pedice: 1-1.5 cm long, straight, glabrous.

Calyx: sepals are 0.20 cm long and 0.17 cm wide at the base. Ovate with a few cilia on edges, overlap about 1/3 at base.

Ovaries: 0.13 cm tall and 0.09 cm wide at base pair. Very short domed, glabrous.



View of the flower enlarged about 8X. Corolla outside glabrous, inside pubescent. Apex inside glabrous.

Sinus – sinus	0.50 cm
Sinus – center	0.35 cm
Sinus – apex	0.39 cm
Apex – center	0.60 cm
Widest	0.45 cm

Corona: saddle shaped, outer apex obtuse, inner lobe raised with ends turned in on drying and do not reach the center. Dorsal with central ridge and sunken in central portion. Channeled below

Apex – apex	0.18 cm
Apex – center	0.23 cm
Widest	0.16 cm
Ret – ret.	0.10 cm
Aw. – aw.	0.15 cm

I had a difficult finding any pollinaria since I had only one flower from the herbarium sheet. I managed to recover 2 retinacula and a few separated pollinia. Below is the photo.

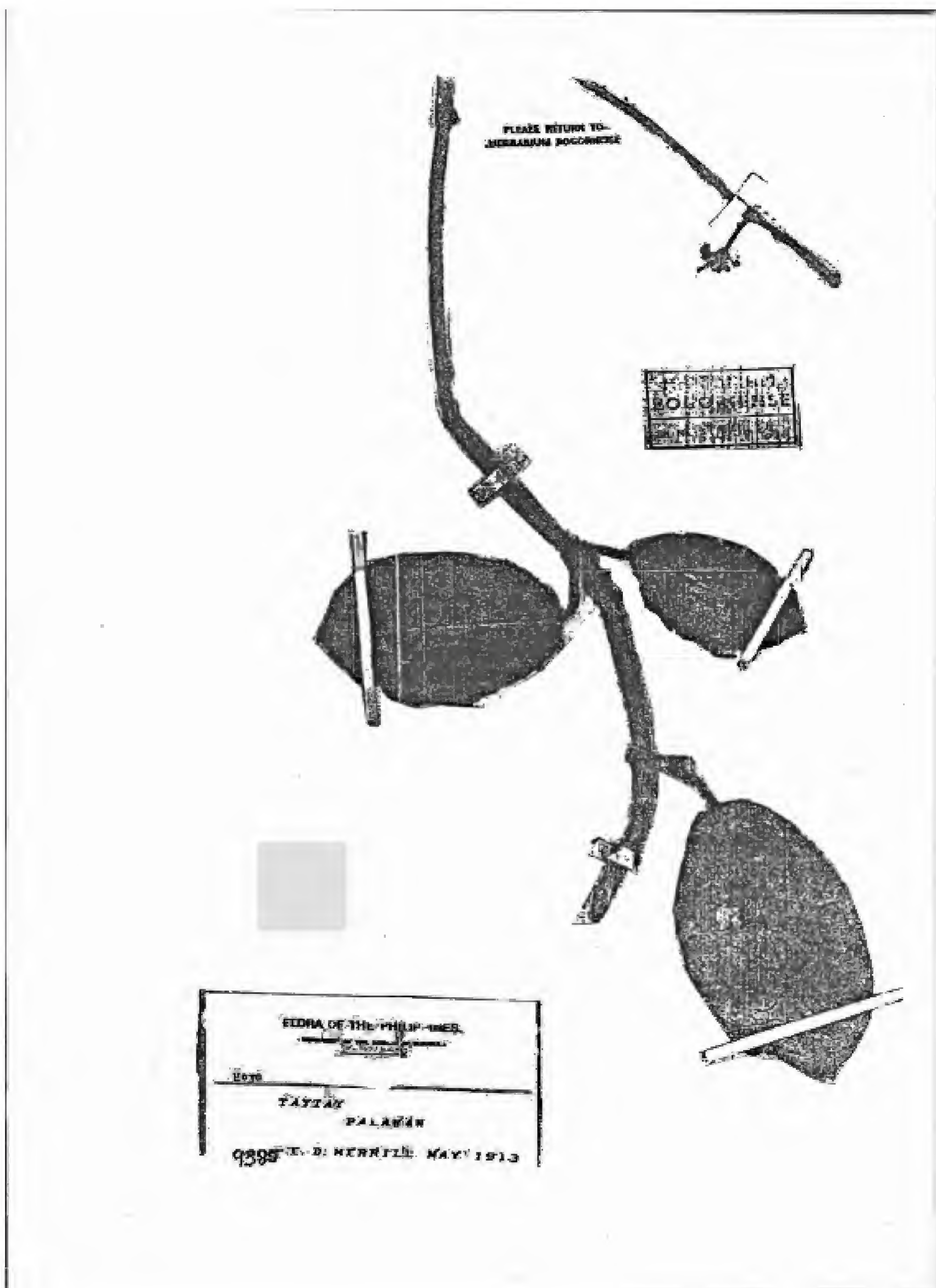


Pollinium

length	0.70 mm
widest	0.23 mm

Retinaculum

length	0.21 mm
shoulder	0.15 mm
waist	0.10 mm
hip	0.13 mm
ext.	0.02 mm



Poor scan of the herbarium sheet (BO) # 9385 collected by E. D. Merrill at Taytay, Palawan in May 1913. About ½ real size.